



NEW JERSEY FFA

CAREER AND LEADERSHIP
DEVELOPMENT EVENTS

Turf Management

2017-2021

Purpose

The New Jersey FFA Turf Management Career Development Event includes all aspects of the industry in producing, marketing, utilizing, and maintaining turf as well as related products, equipment and services. This event will stimulate a career interest, encourage proficiency development, and recognize excellence in students of turf management through the agricultural education curriculum. FFA activities are an integral part of the instructional program in Agriculture, Food, and Natural Resources Education.

Objectives

This event will provide the participant with the ability to:

- Demonstrate the ability to identify turf grasses commonly used in New Jersey
- Demonstrate the ability to identify unhealthy plant conditions due to pests, nutrition or physiological disorders and mechanical or chemical injuries.
- Demonstrate knowledge of the principles and skills involved in propagation, growth requirements, growing techniques, marketing and maintenance of turf.
- Demonstrate the ability to identify, select, use and maintain appropriate supplies and equipment for turf management.
- Demonstrate skills in oral and written business communications.
- Understand marketing principles and demonstrate proper sales and service skills.
- Demonstrate the ability to prepare accurate and legible records and reports and to interpret business documents.

Event Rules

- A team will consist of four members. The three highest individual scores will be totaled for the team score. Teams that have fewer than three members are not eligible for team awards, but students may receive individual awards.
- Under no circumstances will any participant be allowed to touch or handle plant materials or other specimen during event except as specified in certain practicums.
- Each participant must have a clipboard, at least two No. 2 pencils and a calculator.
- Participants are NOT allowed to use (or have visible) electronic devices during the event, unless for medical reasons or a portion of the event requires usage. This includes cell phones, iPods, mp3 players, etc. Participants will be allowed to use calculators, if specified for that event; however, cell phone calculators and graphing calculators are not permitted! **Failure to adhere to these rules will result in disqualification.**
- All individuals participating will judge in a cooperative manner following the rules set forth by the event coordinator
- No school/chapter will use Rutgers University or Delaware Valley University for the training of teams. **Penalty will be disqualification**
- This event will be scored using “Scan-tron” sheets. It is important for students to listen to directions and fill out the sheets correctly in order to receive credit. Sample scan-tron sheets are available for practice on the State Activity Guide. This event will use the Horticulture (Multipurpose) scan-tron sheet.
- There will be no separate alternate teams.
- This event will be held rain or shine.

- Travel Official Dress is required during the event.
- The State level competition fee of \$9 per contestant will be paid by the competing school. If a chapter is at least **blue** affiliated, registration to state FFA career development events is waived.

Event Format

EQUIPMENT

- Materials to be provided by the student:
 - Two no. 2 pencils
 - Clipboard
 - Calculator
- Participants are not to bring:
 - Cell phones or other electronic devices

EVENT SNAPSHOT

Below is a brief overview of the Turf Management CDE:

This event consists of four phases:

- **Phase I – General Knowledge Exam – 100 points (25 minutes)**
- **Phase II – Identification of Turf Species, Pests, and Disorders – 100 points (25 minutes)**
- **Phase III – Equipment Preparation, Maintenance, Problem Solving, and Safety – 50 points (25 minutes)**
- **Phase IV – Customer Relations, Problem Solving and Job Estimating – 150 points (30 minutes)**
 - Part 1 – Site Evaluation – 100 points (20 minutes)
 - Part 2 – Problem Solving – 50 point (10 minutes)

A chapter may have a team of three (3) or four (4). The top three (3) scores are used in determining the team's rank.

FLOW OF EVENT

1. General Knowledge Examination – 25 minutes
2. Identification of turf species, pests, equipment, and disorders – 25 minutes
3. Equipment preparation, maintenance, problem solving and safety – 25 minutes
4. Customer Relations, Problem Solving and Job Estimating
 - a. Site Evaluation – 20 minutes
 - b. Problem Solving – 10 minutes

INDIVIDUAL ACTIVITIES

Students will be given 20 minutes to evaluate each of the three pits and complete a land judging card and homestie evaluation card for each. Three separate pits are evaluated in the following areas:

Phase I- General Knowledge Examination – 100 points

- Twenty-five (25) multiple choice question exam (4 points each) to evaluate the participant's knowledge of pesticide use and safety, cultural practices, fertilizers, soil type, irrigation, plant anatomy and proper turf management practices will be given. This phase of the event will be worth 100 points. Time of this phase will be 25 minutes.

Phase II- Identification of turf species, pests, equipment, and disorders – 100 points

- Twenty-five (25) specimens (4 points each) to be presented as an intact live specimen, photograph or preserved specimen. Each specimen will be designated by a station number. When the contestant identifies the item, its number is recorded on the official scan-tron. When a problem must be presented with an affected plant, a "disorder" label will be with the item to designate identification of a problem rather than a plant name. This phase of the event will be worth 100 points. Time of this phase will be one minute/specimen for a total of 25 minutes.

Phase III- Equipment preparation, maintenance, problem solving and safety – 50 points

- Participant will solve five (5) problems (10 points each) dealing with equipment calibration, equipment check for faulty parts, selection of proper equipment for specific job, identification of a turf problem caused by equipment or operator malfunction, selection of proper management practices to withstand stress conditions, and proper pesticide label evaluation. A problem situation will be presented with answer choices of possible maintenance needs, corrective actions and/or operating specifications. This phase of the event will be worth 50 points. Time of this phase will be five minutes/problem for a total of 25 minutes.

Phase IV- Customer Relations, Problem Solving, and Job Estimating – 150 points

- **Part One - Site Evaluation** - Participants will be required to measure and evaluate a turf area for a specific property. Site-specific information will be provided on the day of the event. Total point value is 100 points. The value of each correct answer will be 1.5 points – 50 answers - for identification questions and twenty-five (25) points for determining the plot size. Time for Part 1 - Site Evaluation will be 20 minutes.
- **Part Two – Problem Solving** - This part will be worth 50 points. Time for this Part 2 - will be 10 minutes.

TIEBRAKERS

If ties occur, the following events will be used in order to determine award recipients:

TEAM

1. Written Exam
2. Identification

INDIVIDUAL

1. Written Exam
2. Identification

Scoring

Total Possible Individual Points – 400 points

Total Team Score– 1200 points

**denotes a hands-on practicum area*

Phase I – General Knowledge Exam – 100 points

Phase II – Identification of Turf Species, Pests, and Disorders* – 100 points

Phase III – Equipment Preparation, Maintenance, Problem Solving and Safety* – 50 points

Phase IV – Customer Relations, Problem Solving or Job Estimating – 150 Points

- **Part 1 - Site Evaluation* (50 points)**
- **Part 2 –Problem Solving (100 points)**

Awards

Awards will be presented to individuals and the first team based on their rankings at the CDE awards ceremony at the New Jersey State FFA Convention.

Awards are sponsored by the New Jersey FFA Foundation, Inc., the New Jersey State FFA Association, and/or the National FFA Organization.

Individual

- Overall Medals
 - Medals – Top three individuals
- H.O. Sampson Certificates (hands-on sections ONLY)
 - Certificate – Top five individuals

Team

- Banner Sponsored by the New Jersey FFA Association - 1st place

This is a state-level event; therefore, the first place team will not advance to further competition.

SCHOLARSHIP OPPORTUNITY

The three highest scoring individuals in the Turf Management Career Development Event will be eligible for scholarships at Rutgers University if they are accepted and enroll in either the Twenty Week Turf Management Program or as a four-year Rutgers, School of Environmental and Biological Science student with a Turf-grass Management major. The scholarship would be applied towards first year tuition.

Turf Management Career Development Event -Scholarship Policy (Effective November 2008)

The Turf Management Career Development Event provides the opportunity for the students to receive college scholarships to attend the Turfgrass Science Program at Rutgers. Currently the scholarships are available to individuals who place 1st-3rd in the event, regardless of how the team places. In an effort to encourage the study of Turfgrass Science in college, an exception will be made for an individual on a 1st place team who didn't rank 1st-3rd individually. The new policy will allow an individual from a 1st place Turf Management team to compete in the event again, but only as an individual. This participation will not affect the team rank. The student must be dues paid members from a chapter in good standing and will be eligible for individual medals and certificates. The student is limited to one attempt to compete as an individual for the scholarship.

References

This list of references is not intended to be all-inclusive.

- Christians and Agnew, The Mathematics of Turfgrass Maintenance (3rd Edition), University of Massachusetts.
- Compendium of Turfgrass Diseases 3rd edition. Smiley, Dernoeden, Clarke 2005. APS Press ISBN 0-89054-330-5
- Cooper, Elmer L., Agriscience Fundamentals & Applications, Delmar Publishers, Inc. 1990.
- Emmons, Turfgrass Science and Management (2nd edition), Delmar Publishers, Inc. 1995.
- Ingels, Landscaping: Principles and Practices (5th edition), Delmar Publishers, Inc., 1997.
- "Landscape, Lawn Care & Golf Course Management" CD-ROM, National Council for Agricultural Education, 2001.
- Schroder and Sprague, Turfgrass Management Handbook (4th edition), Interstate Publishers, Inc. 1994.
- Smith, Ortho Problem Solver (4th edition), Chevron Chemical Co., 1994.
- Turgeon and Giles, Turfgrass Management, Prentice-Hall, Inc. 1991.
- Watschke, Dernoeden and Shellar, Managing Turfgrass Pests, Lewis Publishers, 1995.
- Uva, R.H., Neal, J.C., & DiTomaso, J.M. (1997). Weeds of the Northeast. Cornell University Press, Ithaca, New York.

Turf Management and Related Careers

CAREER OPPORTUNITIES

Career Clusters

- Agriculture, Food & Natural Resources
- Business Management & Administration
- Marketing
- Finance
- Science Technology, Engineering & Mathematics
- Human Services
- Education & Training

CAREER OPPORTUNITIES FOUND IN THE CAREER CLUSTERS

- Agricultural, Food & Natural Resources
 - Greens Keeper
 - Landscaper
 - Sod Production Specialist
- Marketing
 - Landscape Contractor
 - Turf Product Sales
 - Equipment Sales
- Finance
 - Lawn and Turf Care Services
- Science Technology, Engineering & Mathematics

- Plant Taxonomist
- Turfgrass Research Technicians
- Education & Training
 - Landscape Photographer
 - Postsecondary Educator

SAE OPPORTUNITIES

- Employment at a golf course working on the lawns
- Employment at a lawn care business
- Open own business in lawn care
- Employment at a sod/turf farm

EDUCATIONAL REQUIREMENTS/OPPORTUNITIES

- **Associate Degree and/or industry training**
 - Landscaper
 - Home Lawn Maintenance
- **Bachelor Degree**
 - Greens Keeper
 - Landscape Contractor
- **Graduate Degree**
 - Plant Ecologist
 - Plant Taxonomist
 - Postsecondary Educator

PROFICIENCY AWARD AREAS

- Turf Grass Management
- Agriculture Sales and/or Services
- Diversified Horticulture

Phase II Identification (100 points)

Insects, Diseases, Turf Species, Physical Disorders, Weeds and Equipment List

Physical Disorders

101. Chemical burn
102. Drought stress
103. Mower Scalping

Insects

103. Billbug
104. Chinch Bug
105. Cutworm
106. Grubs
107. Sod Webworm

Weeds

108. Annual Bluegrass
109. Black medic
110. Broadleaf plantain
111. Buckhorn plantain
112. Canada Thistle
113. Carpetweed
114. Cinquefoil
115. Common chickweed
116. Common groundsel
117. Crabgrass
118. Dandelion
119. Foxtail
120. Goosegrass
121. Ground Ivy
122. Henbit
123. Knotweed
124. Mouse Ear Chickweed
125. Nimblewill
126. Pennsylvania smartweed/Ladysthumb
127. Poa trivialis
128. Purslane
129. Quackgrass
130. Red sorrel
131. Spurge
132. Velvetgrass
133. White clover
134. Wild Garlic/Onion
135. Yellow Nutsedge
136. Yellow Woodsorrel (Oxalis)

Turf Species

138. Bentgrass
139. Bermuda grass
140. Annual Ryegrass
141. Buffalo grass
142. Fine Fescue
143. Kentucky Bluegrass
144. Perennial Ryegrass
145. Tall Fescue
146. Zoysia grass

Diseases

147. Brown Patch
148. Dollar Spot
149. Fairy Ring
150. Leaf Spot
151. Powdery Mildew
152. Pythium Blight
153. Red Thread
154. Rust
155. Stripe Smut

Equipment

156. Aerator
157. Cup Cutter
158. Broadcast Spreader
159. Drop Spreader
160. Overseeder
161. Reel Mower
162. Respirator
163. Rotary mower
164. Rototiller
165. Sod Cutter
166. Spray Nozzle
167. Sprayer
168. String Trimmer
169. Thatcher
170. Fungicide
171. Herbicide
172. Fertilizer

PHASE IV -PART 1 - SITE EVALUATION SHEET

NAME _____ CHAPTER _____

Directions: First determine the total square footage of the plot. Record your square footage in the box below. Using the "Exam" section of your scantron sheet, evaluate the plot according to the following areas. If the answer is "Yes" enter it as "A", if the answer is "No", enter it as "B" on the scantron sheet. Each choice given below must have either the "Yes/A" or the "No/B" box filled in. Some sections may have more than one "yes/A" box filled in.

TOTAL SQUARE FEET (25 points) _____

YES (A) NO (B)

GRASS TYPE

1. ANNUAL BLUEGRASS
2. BENTGRASS
3. FINE FESCUE
4. KENTUCKY BLUEGRASS
5. PERENNIAL RYEGRASS
6. TALL FESCUE

THATCH THICKNESS (only one "yes" the rest "no")

7. LESS THAN 1"
8. 1"-2"
9. MORE THAN 2"

AVAILABLE SUNLIGHT (one "yes" the rest "no")

10. 100% SUN
11. 75% SUN
12. 50% SUN
13. 25% OR LESS SUN

WATERING PRACTICE

14. PROPER

SOIL pH

15. PROPER

MOWING

16. PROPER

NITROGEN FERTILITY (only one "yes" the rest "no")

17. ADEQUATE
18. EXCESSIVE
19. INADEQUATE

INSECT DAMAGE

20. CINCH BUGS
21. GRUBS
22. SOD WEBWORM
23. NONE ACTIVE

SOIL TEXTURE (CLOSEST) (only one "yes" the rest "no")

24. CLAY
25. CLAY LOAM
26. LOAM
27. SAND
28. SANDY LOAM

WEEDS

29. BROADLEAF PLANTAIN
30. BUCKHORN PLANTAIN
31. COMMON CHICKWEED
32. CRABGRASS
33. DANDELION
34. FOXTAIL
35. GOOSEGRASS
36. KNOTWEED
37. MOUSEEAR CHICKWEED
38. NIMBLEWILL (NIMBLEWEED)
39. PURSLANE
40. SPURGE
41. THISTLE
42. WHITE CLOVER
43. WILD GARLIC/ ONION
44. YELLOW NUTSEDGE
45. YELLOW WOODSORREL (OXALIS)

DISEASES PRESENT

46. BROWN PATCH
47. DOLLAR SPOT
48. LEAF SPOT
49. RED THREAD
50. RUST

TOTAL SQUARE FEET _____ **(25 PTS)**

CORRECTED BY: _____ CHECKED BY: _____

SAMPLE**Phase IV- Part II – Turf Problem Solving**

NAME _____ CHAPTER _____

I. A soil test result shows a turf area has a very low level of phosphorous and a pH of 6.8.

(5 points)

1. Should lime be applied to the area? Yes No

(5 points)

2. Which of the following fertilizers would be best to apply?

A. 34-0-0

B. 10-20-10

C. 10-5-20

(20 points)

II. How much fertilizer having an analysis of 20-5-15 do you need to apply to 10,000 square feet of turf at a rate of 1 pound of nitrogen per 1000 square feet?

_____ pounds

(20 points)

III. You have a choice of two different fertilizers with different prices per 50-pound bag.

A. 16-4-8 at \$18.00 per bag

B. 28-4-10 at \$25.00 per bag

Which fertilizer is the least expensive based on cost per pound of nitrogen?

Fertilizer _____

Price per pound of nitrogen \$ _____
(to the nearest cent)



HORTICULTURE

CDE# 105482

Incorrect Marks



Correct Mark



Team Name

Team Number	State	Last Name	First Name
0 0 0 0			
1 1 1 1	A A A A A A A A A A A A A A A A A A		
2 2 2 2	B B B B B B B B B B B B B B B B B B		
3 3 3 3	C C C C C C C C C C C C C C C C C C		
4 4 4 4	D D D D D D D D D D D D D D D D D D		
5 5 5 5	E E E E E E E E E E E E E E E E E E		
6 6 6 6	F F F F F F F F F F F F F F F F F F		
7 7 7 7	G G G G G G G G G G G G G G G G G G		
8 8 8 8	H H H H H H H H H H H H H H H H H H		
9 9 9 9	I I I I I I I I I I I I I I I I I I		
	J J J J J J J J J J J J J J J J J J		
	K K K K K K K K K K K K K K K K K K		
	L L L L L L L L L L L L L L L L L L		
	M M M M M M M M M M M M M M M M M M		
	N N N N N N N N N N N N N N N N N N		
	O O O O O O O O O O O O O O O O O O		
	P P P P P P P P P P P P P P P P P P		
	Q Q Q Q Q Q Q Q Q Q Q Q Q Q Q Q Q Q		
	R R R R R R R R R R R R R R R R R R		
	S S S S S S S S S S S S S S S S S S		
	T T T T T T T T T T T T T T T T T T		
	U U U U U U U U U U U U U U U U U U		
	V V V V V V V V V V V V V V V V V V		
	W W W W W W W W W W W W W W W W W W		
	X X X X X X X X X X X X X X X X X X		
	Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y		
	Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z		

Code

0 0
1 1
2 2
3 3
4 4
5 5
6 6
7 7
8 8
9 9

Place	Placing Classes									Place	
	1	2	3	4	5	6	7	8	9		
1	1234									1234	1
2	1243									1243	2
3	1324									1324	3
4	1342									1342	4
5	1423									1423	5
6	1432									1432	6
7	2134									2134	7
8	2143									2143	8
9	2314									2314	9
10	2341									2341	10
11	2413									2413	11
12	2431									2431	12
13	3124									3124	13
14	3142									3142	14
15	3214									3214	15
16	3241									3241	16
17	3412									3412	17
18	3421									3421	18
19	4123									4123	19
20	4132									4132	20
21	4213									4213	21
22	4231									4231	22
23	4312									4312	23
24	4321									4321	24

Team Activity		Practicums (Judges)					
Team	Ind.	1	2	3	4	5	6
0 0 0 0 0 0							
1 1 1 1 1 1							
2 2 2 2 2 2							
3 3 3 3 3 3							
4 4 4 4 4 4							
5 5 5 5 5 5							
6 6 6 6 6 6							
7 7 7 7 7 7							
8 8 8 8 8 8							
9 9 9 9 9 9							

Assessment and Solution					
1 A B C D	6 A B C D	11 A B C D	16 A B C D	21 A B C D	
2 A B C D	7 A B C D	12 A B C D	17 A B C D	22 A B C D	
3 A B C D	8 A B C D	13 A B C D	18 A B C D	23 A B C D	
4 A B C D	9 A B C D	14 A B C D	19 A B C D	24 A B C D	
5 A B C D	10 A B C D	15 A B C D	20 A B C D	25 A B C D	

Exam		Exam 2/Team	
1 A B C D	26 A B C D	1 A B C D	
2 A B C D	27 A B C D	2 A B C D	
3 A B C D	28 A B C D	3 A B C D	
4 A B C D	29 A B C D	4 A B C D	
5 A B C D	30 A B C D	5 A B C D	
6 A B C D	31 A B C D	6 A B C D	
7 A B C D	32 A B C D	7 A B C D	
8 A B C D	33 A B C D	8 A B C D	
9 A B C D	34 A B C D	9 A B C D	
10 A B C D	35 A B C D	10 A B C D	
11 A B C D	36 A B C D	11 A B C D	
12 A B C D	37 A B C D	12 A B C D	
13 A B C D	38 A B C D	13 A B C D	
14 A B C D	39 A B C D	14 A B C D	
15 A B C D	40 A B C D	15 A B C D	
16 A B C D	41 A B C D	16 A B C D	
17 A B C D	42 A B C D	17 A B C D	
18 A B C D	43 A B C D	18 A B C D	
19 A B C D	44 A B C D	19 A B C D	
20 A B C D	45 A B C D	20 A B C D	
21 A B C D	46 A B C D	21 A B C D	
22 A B C D	47 A B C D	22 A B C D	
23 A B C D	48 A B C D	23 A B C D	
24 A B C D	49 A B C D	24 A B C D	
25 A B C D	50 A B C D	25 A B C D	

[illegible]

Common Core & State Core Curriculum Content Standards

Through Agriculture, Food, and Natural Resources Education, FFA helps students meet the Common Core Standards, Science Core Curriculum Content Standards, and the 21st - Century Life and Careers Core Curriculum Content Standards. The Turf Management Career Development teaches students about English Language Arts, Science, and Career and Technical Education. Some examples of how the Turf Management Career Development Event is meeting these standards are:

Students will: integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.

- The problem-solving component of this event involves students solving word problems about turf and reading pesticide and herbicide labels. [RI.11-12.7. English Language Arts – Reading: Informational Text – Integration of Knowledge and Ideas]

All students will understand that science is both a body of knowledge and an evidence-based, model-building enterprise that continually extends, refines, and revises knowledge.

- Students need to be familiar with the application of pesticides and herbicides, which are used as chemical controls for nuisance species. Students will recognize that different chemicals are used to treat different species and that new pests and nuisance species may arise (invasive species). [5.1Science: Science Practices].

All students who complete a career and technical education program will acquire academic and technical skills for careers in emerging and established professions that lead to technical skill proficiency, credentials, certificates, licenses, and/or degrees.

- By participating in the Turf Management Career Development Event, students will learn technical skills, such as integrating mathematics to solve real-life problems, to prepare for a career in Turf Management. The top three participants in the event are also eligible for a scholarship to attend a post-secondary education program at Rutgers University. [21st - Century Life and Careers - 9.4 Career and Technical Education]